LAYING THE TRACK

Lionel track is flexible so that it is possible to construct layouts which are not strictly symmetrical. However, be careful not to bend or distort the track too much or you will cause your train to derail. If you fasten your track to a wooden base it will be more secure and will insure better train operation. Small screws are best for this purpose, since they are easier to remove than nails. Don't screw down the track too tightly. Track should be fastened merely to prevent shifting—not to clamp it down to the base. If you attempt to screw it down tightly, you will distort the track and cause the train to operate badly.

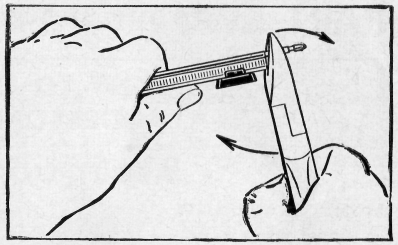

Figure 26—Removing Track Pins

Where special irregular lengths of track are needed cut the regular track section to proper size using a fine-toothed hack saw. Smooth the cut edges with a fine file.

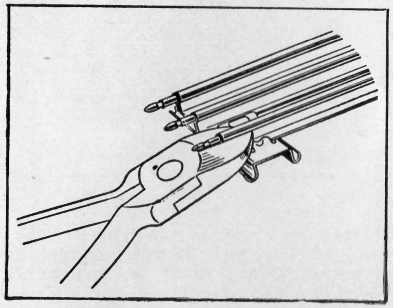

Figure 27—How to Tighten Pins in Track

REMOVING TRACK PINS

In many cases you may find it necessary to remove the steel pins from a track rail, either to place them into the opposite end of the rail or to replace them with fibre insulating pins. This can be done most easily with a pair of diagonal pliers, as shown in Figure 26. Use the rail flanges as a lever point and work the pin out gradually. Try not to distort the rail. To tighten pins in the track, or to reshape distorted or enlarged rail openings apply the pliers as shown in Figure 27. Many model railroaders make their own special track pliers by filing a round groove the size of a rail in a pair of flat nose pliers.

TRACK SWITCHES AND CROSSINGS

Besides various straight and curved track sections, many layouts also require the use of track switches and crossings. Track switches, or "turnouts" are used to connect two lines of track to enable the train to switch over to a different main line or a siding. Track switches are usually sold and used in pairs consisting of left hand and a right hand switch although single switches are available for use in constructing sidings. Lionel makes both electric remote control and manual, or hand-operated switches. Electric switches matching "O" track are No. 022; manual "O" switches are No. 042. Electric switches for "027" track are No. 1121; manual "027" switches are No. 1024.

Track crossings enable two lines of track to cross each other like a figure 8. For "027" track Lionel makes a 90-degree crossing No. 1021. For "O" track there is a 90-degree crossing No. 020 and a 45-degree crossing No. 020X. Crossings and hand-operated switches need no special wiring of any kind. They are inserted into the layout like any ordinary track sections; the steel track pins make the required electrical connections. In permanent layouts it is sometimes advisable to put a small spacer or "shim" underneath a track tie adjacent to a switch, in order to keep the level of the track and the switch rails even.

ABOUT TRACK SWITCHES

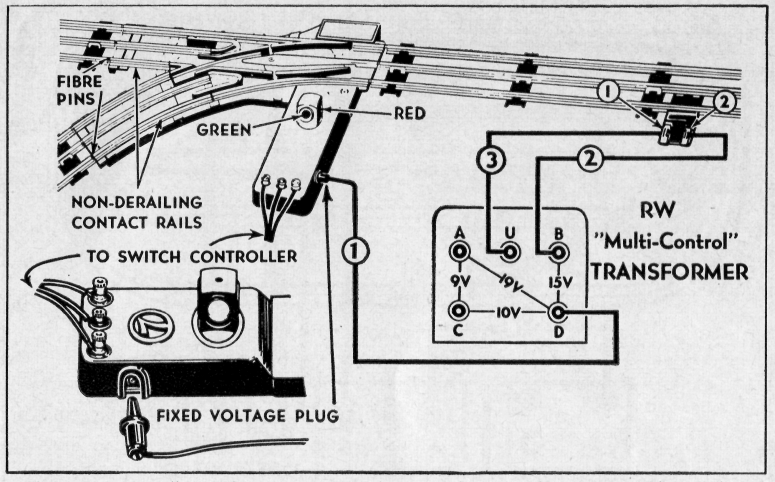

Figure 28—Installation for No. 022 Switch. For Other Transformers See Chart Below

No. 022 REMOTE CONTROL SWITCH

No. 022 switches are operated by controllers connected to the switch by 3-wire cables. Connect the center wire to the middle binding post of the switch. Connect the outside wires to the outside binding posts.

When the switch is properly installed, moving the controller lever throws the swivel rails of the switch either to permit the train to go along the straight-away, or to turn it onto the curved portion of the track. The switch and the controller are equipped with red and green lights which indicate the position of the swivel rail. When the switch is set for the train to go along the straight-away, green light shines in the controller and along the straight-away. When the switch is set for the train to go along the curved portion, red light shows in both places.

FIXED VOLTAGE PLUG

The Fixed Voltage Plug which is furnished with 022 switches makes it possible to get power for the switch directly from the transformer. Wire the plug directly to transformer following Figure 29.

The use of the Fixed Voltage Plug is optional. In small layouts it may not be necessary, for the switches will operate satisfactorily by drawing the current directly from the track. Connection is made automatically when Fixed Voltage Plug is removed.

TRANSFORMER	TRANSFORMER CONNECTIONS					
	LOW TRACK VOLTAGE			HIGH TRACK VOLTAGE		
	WIRE No.1	WIRE No.2	WIRE No.3	WIRE No.1	WIRE No.2	WIRE No.3
A & Q	LOW VOLTAGE NOT USED			C	A	U THROUGH 167
R	E	B	C OR F THROUGH 167	D	A	C OR F THROUGH 167
V & Z	A OR B	U	C OR D THROUGH 167			
S	C	B	U	C	A	U
RW	D	B	U	D	A	U
VW & ZW	B OR C	U	A OR D			
KW	D	C	A OR B	D	U	A OR B
No. 1033	NOT USED	B	U	C	A	U

Figure 29—Fixed Voltage Combinations in Various Transformers